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STRENGTHENING OF THE COORDINATION OF HUMANITARIAN AND DISASTER RELIEF ASSISTANCE OF THE UNITED NATIONS, INCLUDING SPECIAL ECONOMIC ASSISTANCE

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ECONOMIC AND ENVIRONMENTAL QUESTIONS

International cooperation to mitigate the environmental consequences on Kuwait and other countries in the region resulting from the situation between Iraq and Kuwait

Report of the Secretary-General

I. INTRODUCTION

1. The report entitled "Updated scientific report on the environmental effects of the conflict between Iraq and Kuwait" (UNEP/GC.17/INF.9), was submitted for information to the Governing Council of the United Nations Environment Programme (UNEP) at its seventeenth session, held from 10 to 21 May 1993. The report was prepared in pursuance of General Assembly resolution 47/151 of 18 December 1992 and summarizes the results of the inter-agency efforts of the United Nations in responding to the environmental crisis in the Kuwait region. It provides an update of the environmental situation, based on the scientific results obtained through the surveys and assessments carried out under and in relation to the Inter-agency Plan of Action for the Region Covered by the Regional Organization for the Protection of the Marine Environment (ROPME) and briefly describes United Nations initiatives to mitigate the adverse effects of the conflict and rehabilitate the environment in the region.

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II. UNITED NATIONS INTER-AGENCY PLAN OF ACTION

2. The United Nations agencies led by UNEP and in cooperation with ROPME, developed the United Nations Inter-agency Plan of Action soon after the liberation of Kuwait. The main objectives of the Plan were:

(a) To assess the environmental consequences of the war on the marine and coastal areas, atmosphere and terrestrial ecosystems and the hazardous waste situation in the region;

(b) To propose a programme for the mitigation of the adverse effects, and for rehabilitation and protection of the environment affected by the conflict.

3. The first phase of the United Nations Inter-agency Plan of Action started on 20 April 1991 and was completed in 90 days, that is, on 21 July 1991. It involved initial surveys and a preliminary assessment of the environmental damage to the region in the aftermath of the conflict.

III. STATE OF THE ENVIRONMENT

4. The preliminary results of the Plan of Action were published by UNEP in its report of 12 October 1991, 1/ and were updated on 12 June 1992. The initial findings of the Plan of Action are summarized below, together with results from a 100-day research cruise conducted in the ROPME sea area by the research vessel Mount Mitchell of the National Oceanic and Atmospheric Administration (NOAA) of the United States of America during the period February to June 1992.

A. Marine and coastal environment

1. Results of the initial surveys of the United Nations Inter-agency Plan of Action

5. Between 19 and 28 January 1991, an estimated 6 million to 8 million barrels of oil were spilled into the ROPME sea area. Moreover, atmospheric fallout from Kuwait's damaged wells gradually introduced a considerable additional quantity of oil in the form of small oil droplets and oily soot.

6. As the main body of the oil slick moved south along the Saudi Arabian coast, the areas affected most heavily were the lagoons, salt marshes and bays located between Ras Al-Khafji to the north and Ras Abu Ali to the south. At least 30,000 marine birds perished. Approximately 20 per cent of the mangroves on the eastern coast of Saudi Arabia have been oiled and about 50 per cent of the coral reefs have been affected. The Iranian coast north of Bandar Khomeyni was also affected, while the Iraqi and Kuwaiti coasts suffered only relatively light damage.

7. The physical destruction of beaches by digging trenches, laying mines, barbed wire and other defence installations damaged the intertidal zone and the destruction of sewage treatment plants in Kuwait resulted in the release of over

50,000 cubic metres per day of raw sewage into Kuwait Bay, posing a great danger to human and animal life.

2. Results of the Mount Mitchell research cruise

8. The intensive United Nations effort to assess the state of the marine environment culminated in the launching, in late February 1992, of a 100-day research cruise in the ROPME sea area by the fully equipped 23-foot research vessel Mount Mitchell of the NOAA of the United States, in cooperation with ROPME and UNESCO Intergovernmental Oceanographic Commission (IOC). Investigations were carried out at a large number of stations covering almost the entire ROPME sea area. The results of the expedition provide the scientific basis for the rehabilitation of the marine and coastal environment in the ROPME sea area. The main findings and conclusions are summarized in paragraphs 9 to 17 below.

3. Impacts of oil pollution

Effects on water

9. In the water column, decomposition of the oil was found to be relatively fast. Concentrations of the breakdown products (oxidation products) of oil were found to be about 10 times higher than concentrations of their parent hydrocarbons. Subsurface oil was present in many areas in a variety of habitats. Oil-saturated intertidal waters were common in many of the intertidal habitats.

10. The results of the analyses of trace metals in water samples, do not indicate that the trace metal content of the water has increased as a consequence of the conflict.

Effects on sediments

11. The subtidal sediments in the near offshore areas of the ROPME sea area, from Kuwait to Qatar, were found to contain relatively low and uniform concentrations of polynuclear aromatic hydrocarbons. In the areas investigated there was no evidence of large-scale sinking of oil. Following diverse observations at over 150 locations, oil was observed at three sites, all of which were channel bottoms where tarballs were accumulating.

12. Preliminary chemical analysis provided some indication of wide-spread, low-level oil contamination of the fine-grained sediments. Highest levels of contamination were found in the muddy sediments accumulating in the dredged channels at the head of Dawhat ad Dafi and relatively high concentrations were also measured in the sheltered interior bays of Dawhat al Musallimiyah.

Effects on the shoreline

13. Much of the residual oil exhibited considerable weathering. However, there were areas of heavy oil which remained relatively fresh and continued to be released as sheens.

Effects on coral reefs

14. The expedition was unable to reveal any demonstrable, direct effects of the 1991 oil release on the coral reefs in most of the ROPME sea area. Coral reefs appeared to be in good condition. However, the corals of the three reefs examined in Kuwait, at Qita't Urayfijan, Taylor Rock and Kubbar Island, showed signs of stress. It must be realized that the survey team visited only an arbitrarily selected portion of each reef and a limited number of reefs at each station.

Effects on seagrass and algal mats

15. Three species of seagrass were examined (Halodule unireivo, Holoplaeta ovolis and Holophila stipalacea). There were no significant effects on the respiration or photosynthesis of the seagrass. These results, coupled with the field observations suggest that the oil had little effect on the subtidal seagrasses of the northern part of the ROPME sea area.

Effects on fisheries

16. Biological studies were concentrated in the western ROPME sea area and because of the limited number of fish and plankton samples collected, it is still premature to establish geographic trends along the western margin of the area. The question of whether there has been a general decline in the region's fish and shrimp stocks is yet to be addressed.

17. Experiences from oil pollution studies in other parts of the world suggest that commercially caught fishery products do not constitute a health hazard to the average consumer.

B. Atmospheric pollution, including long-term effects on human health

18. A meeting of experts to assess the atmospheric effects of the Kuwait oil fires, organized by the World Meteorological Organization (WMO) in cooperation with UNEP at Geneva from 25 to 29 May 1992, the results of extensive aerial reconnaissance surveys of the fire plumes, were analysed. The major findings 2/ are summarized in paragraphs 19 to 24 below.

Effects on global climate

19. The total emissions of carbon dioxide are estimated to be 3 x 10^8 tonnes, which is about 1.5 per cent of the world-wide annual emissions from fossil fuel and biomass burning. The calculated effect of such carbon dioxide emissions on global warming is so small that it will be immeasurable.

Effects on regional and local weather

20. Local and regional temperatures and solar flux were reduced under the plume. However, there is no evidence that regional weather was consistently affected.

Ground-level concentrations and their relation to human health

21. High concentrations of particulate matter have been common in the region, making it difficult to determine the contribution from the oil well fires without chemical analysis. Levels observed were not high enough, however, to cause observed acute health effects.

22. In Kuwait and Saudi Arabia the ground-level concentrations of nitrogen dioxide, nitrogen oxides, carbon monoxide, hydrogen sulphide and ozone did not exceed the local and recognized standards. There were instances in which sulphur dioxide concentrations exceed the local standards. However, generally the population was not exposed to persistently high concentrations of gases.

23. Soot and oil mist covered the soil surface and vegetation in large areas, with the soot-affected area extending into Saudi Arabia. Most of the native vegetation in the soot-affected areas was adversely affected. The annual flora failed to set seed. The long-term impacts of soot and oil deposition are unclear.

Immediate and long-term effects on human health

24. Air pollution resulting from the burning oil wells in Kuwait represented a potential hazard to human health. However, in view of the fact that the smoke plume was, on average confined to heights between 500 m and 4 km above ground level, the immediate hazard to human health was drastically reduced. Nevertheless, possible long-term effects are still uncertain.

C. Terrestrial ecosystem including hazardous wastes

25. Initial surveys were carried out August and September 1991 by the UNEP (Terrestrial Ecosystems Branch (Soil Unit) and the Regional Office for West Asia - ROWA). Three comprehensive reports on the results of the survey and assessment mission in Iraq, Kuwait and Saudi Arabia were published by UNEP/Terrestrial Ecosystems Branch (Soils)/Rowa. 3/ The main findings of these surveys are summarized in paragraphs 26 to 30 below.

26. Hazardous wastes were surveyed by the United Nations Industrial Development Organization (UNIDO) and indicated that the risk to the environment and human health will remain fairly acute until plans are designed and implemented to assess and clean up the disposal sites, both in Kuwait and Iraq, each according to its particular characteristics.

27. The loosening of desert soil surface by military activities posed severe environmental problems in the region. Dunes are already being formed and

continue to threaten roads and farms. The number of dust storms has already doubled.

28. Some media reports in January 1993 indicated the possibility that depleted uranium shells (penetrators) might have been used during the conflict between Iraq and Kuwait, posing a serious threat to human health in these countries. The reports have not been confirmed by independent sources.

Iraq

29. Drainage water accumulated and raised the water table increasing soil salinity in vast agricultural areas; destruction of fertilizer plants left the country without these inputs; toxic chemicals were spilled into soil and into running streams; both crops and livestock were very adversely affected.

Kuwait

30. Serious damage to the terrestrial ecosystem was observed in Kuwait. Soot and oil mist covered the soil surface and vegetation over large areas; oil escaping from exploded wells accumulated to form oil lakes extending over large areas of the desert, in some cases with depths of up to 1 metre or more. Estimates of the quantity of oil accumulated in these pools range between 25 million and 50 million barrels.

IV. SOCIO-ECONOMIC ASPECTS

31. The conflict between Iraq and Kuwait had serious socio-economic impacts on the countries of the region and beyond. The Governing Council of the United Nations Development Programme, in its decision 91/21 of 25 June 1991, 4/ requested the convening of a funding strategy meeting to consider a draft proposal for the socio-economic and environmental recovery of countries affected by the conflict between Iraq and Kuwait. In that connection, UNEP prepared a Consolidated Rehabilitation Programme, containing a proposed programme for the environmental rehabilitation of the region, the implementation of which would assist in the alleviation of the above socio-economic problems.

V. FOLLOW-UP INITIATIVES

32. While the United Nations inter-agency efforts proceeded at the technical level, further attention was being paid to the political and financial aspects of the environmental crisis. A Consolidated Rehabilitation Programme for the environment of the ROPME region and a priority action programme were prepared by UNEP in cooperation with the ROPME secretariat. The Programme incorporated costed and targeted project proposals covering the three environmental components, technical cooperation aspects, and the needs of the countries of the region with respect to oil clean-up, recovery and restoration. The Rehabilitation Programme was presented by UNEP to a meeting of some 70 States Members of the United Nations, including major potential donors.

33. The environmental rehabilitation issue was later brought up at the third special session of the Governing Council of UNEP. In order to keep the environmental crisis at the forefront of the international political arena, the Secretary-General of the United Nations requested his special representative to visit Kuwait during March 1992 to reassess the situation after the capping of the burning oil wells. The visit to Kuwait was carried out from 29 to 31 March 1992, during which the Secretary-General's special representative, accompanied by a senior staff member of UNEP, held talks at the highest possible level. The Secretary-General's representative discussed various options for rehabilitation strategies and funding possibilities. The outcome of the visit was brought to the attention of the Secretary-General and the Executive Director of UNEP, in order for an acceptable strategy to be formulated and applied as soon as adequate resources become available.

34. The Governing Council of UNEP recognized, in its decision 17/7 of 21 May 1993, 5/ that financial resources need to be mobilized to support: (a) further investigation of the long-term impacts of the environmental effects of the conflict between Iraq and Kuwait; (b) the ROPME programmes related to this issue; and (c) efforts for needed assessment and rehabilitation programmes. The Council also requested the Executive Director of UNEP to continue the lead role of UNEP in coordination of the efforts of the United Nations and international organizations in respect of the above-mentioned points.

35. In view of the fact that the voluntary contributions received in the special trust fund set up by the Executive Director of UNEP only covered partially the planned coordinated activities carried out in the immediate aftermath of the Gulf crisis and that these contributions were not further augmented by contributions from the Gulf States, UNEP has undertaken to make an effort to mobilize further funding if and when affected Gulf States were to make moneys available for the objectives summarized in paragraph 34 above.

36. UNEP has taken further initiatives to address the issue of additional contributions to the rehabilitation programme. At the most recent meeting of the ROPME Council in Kuwait, from 27 to 28 October 1993, the UNEP representative proposed and the Council accepted, that:

> "as an alternative way to finance the rehabilitation programmes, the present outstanding contributions (KD 4,853,724 = approximately US$ 15 million) could be set aside to be put into a special fund for the rehabilitation programme. ..., if the ROPME member States commit to contribute funds to the extent of 30 per cent of the budget required for the rehabilitation programme, UNEP would adhere to the agreement made by the former Executive Director of UNEP to assist ROPME in raising two thirds of the funds for the rehabilitation programme, whatever the scale may be".

37. UNEP has organized a meeting with representatives of the oil and petroleum industry to explore cost-effective means to address long-term effects of large oil spills based on the experience in the Gulf. The meeting is scheduled to take place in June 1994.

38. UNEP has continued its discussions with several specialized agencies of the United Nations above the modalities, including financial requirements, of determining how further investigations of the long-term impacts of the Gulf crisis can go forward.

Notes

1/ Report on the United Nations Inter-agency Plan of Action for the ROPME Region - Phase I: Initial Surveys and Preliminary Assessment, UNEP, 12 October 1991.

2/ Report of the Second WMO Meeting of Experts to Assess the Response to and Atmospheric Effects of the Kuwait Oil Fires (Called in collaboration with UNEP). WMO, Global Atmosphere Watch No. 81, Ref. WMO/TD-No. 512, 1992.

3/ A Rapid Assessment of the Impacts of the Iraq-Kuwait Conflict on Terrestrial Ecosystems. Part I: Iraq; Part II: Kuwait; Part III: Saudi Arabia. UNEP/Terrestrial Ecosystems Branch (Soils)/Regional Office for West Asia, Bahrain, September 1991.

4/ Official Records of the Economic and Social Council, 1991, Supplement No. 13 (E/1994/34), annex I.

5/ Official Records of the General Assembly, Forty-eight Session, Supplement No. 25, annex.